TABLE 2.—*Instrumental seismological reports, January, 1921*—Contd.

CANADA. *Dominion Meteorological Service, Toronto.*

1921.			H. m. s.	Sec.	μ	μ	Km.	
Jan. 1								Isolated micros in early morning.
2		e	7 31 42					
		L	7 55 18					
		L	8 00 42					
		L	8 03 36					
		M	8 04 18		*200			
		F	8 06 54					
3		eL	21 44 24					
		M	21 45 06		*200			
		F	21 47 12					
6		L	13 06 30					
		eL	13 09 42					
		eL	13 15 54					
		M	13 17 12		*300			
		F	14 15 36					
7		L	1 59 24					
		eL	2 06 18					Small micros going on all morning.
		M	2 09 18		*300			
		eL	2 15 36					
		F	2 26 18					
7		L	3 37 30		*100			
7		L	4 11 30					
		M	4 17 06		*300			
		eL	4 20 48					
		eL	4 40 12					
		M	4 42 12		*300			
		eL	4 51 06					
		F	5 03 51					
9		iS	13 13 12					S preceded by micros.
		e	13 20 00					
		eL	13 25 18					
		eL	13 27 30					
		M	13 30 00		*400			
		eL	13 39 24					
		F	13?58 06					
9		eL	14 55 06					Micros 14:21:54. 14:35:00.
		M	14 58 24		*500			
		F						Micros.
15		L	13 10 18					Small micros going on.
		F	13 14 54?			*100		
16		S	16 11 30					S may be P phase.
		eL	16 16 18					
		M	16 17 12		*200			
		F	16 20 36					May not be seismic.
19		iL	15 30 36					
		M	15 32 06		*200			
		eL	15 40 54					
		eL	15 51 30					
		F						Micros.
20		P	21 06 12					
		S	21 13 00					
		e	21 18 06					
		eL	21 19 42					
		eL	21 22 12					
		M	21 21 06		*800			
		F	21 52 54					
25		eL	22 55 30					
		eL	22 57 06					
		M	22 58 06		*300			
		F						Do.
26		eL	12 38 18					Heavy micros going on from 11 hrs.
		M	12 38 48		*300			
		F						
31								Heavy micros began at 0h. 52m. 06s., continuing all day.

* Trace amplitude.

No earthquakes were recorded at the following stations during January, 1921:

ALABAMA. *Spring Hill College*, Mobile.
COLORADO. *Sacred Heart College*, Denver.
MISSOURI. *St. Louis University*, St. Louis.
VERMONT. *U. S. Weather Bureau*, Northfield.
MARYLAND. *U. S. C. & G. S. Magnetic Observatory*, Cheltenham.
PORTO RICO. *U. S. C. & G. S. Magnetic Observatory*, Vieques.
ARIZONA. *U. S. C. & G. S. Magnetic Observatory*, Tucson.
ALASKA. *U. S. C. & G. S. Magnetic Observatory*, Sitka.

Reports for January, 1921, have not been received from the following stations:

MASSACHUSETTS. *Harvard University*, Cambridge.
NEW YORK. *Cornell University*, Ithaca.

SEISMOLOGICAL DISPATCHES.

[Collected by seismographic station, Georgetown University, Washington, D. C.

Mendoza, Argentina, January 5, 1921.—The entire region affected by the disastrous earthquake of December 17 was again visited by an unusually strong shock at 3 o'clock, Monday afternoon (January 3). This one, which was of five seconds' duration, was the worst felt since December, and it leveled the few walls left standing in the destroyed towns of La Valle and Castro de Araujo, near Mendoza. Reports state that the shock was felt in Santiago. (A.)

Paris, January 7, 1921.—Dispatches to the Albanian authorities indicate that the recent earthquake disaster in the Elbassan district was for more serious than was shown by the earlier reports. The shocks were especially heavy in the area between Tepelini and Elbassan. The latter city is almost completely razed. (A.)

Los Angeles, January 8, 1921.—The towns of Covina, Glandor, and Azusa, in the San Gabriele Valley, 20 miles east of here, were rocked to-night by what was declared to be a series of explosions, according to reports received here. Every house in the towns were shaken and windows broken. The first shock was felt at about 9:30 and was followed by two more within half an hour. Each was accompanied by a loud report. Otherwise the tremblings resembled an earthquake. (A.)

Willows, Calif., January 13, 1921.—A sharp earthquake, lasting about three seconds, was felt here at an early hour to-day. Sleepers were aroused, but no damaged was reported. A similar shock was felt here on December 29 last. (A.)

Rome, Italy, January 14, 1921.—Two earth tremors occurred last night in Faenza, in north central Italy between Bologna and Ravenna. First tremor was at 7 p. m. and the second at 9:30 p. m. There is no mention of damage in the report. (A.)

Santiago, Chili, January 17, 1921.—A violent earthquake was felt here at 9:30 o'clock this Monday (17th) evening. Hundreds of persons fled to the streets in alarm. No serious damage reported. (A.)

Devonshire Dock, Bermuda, January 18, 1921.—Slight tremors were felt here on January 18 at 16 minutes past 6 o'clock p. m. (S. C.)

Glen Falls, N. Y., January 19, 1921.—The first shocks were felt at Corinth at 5 o'clock a. m., and two hours later they were felt at Lake George. Houses were shaken to the rattling of dishes. (A.)

Glen Falls, N. Y., January 19, 1921.—What are believed by residents to have been earthquake shocks were felt to-day for three minutes at Corinth and Lake George. (A.)

Philadelphia, Pa., January 26.—An earth tremor or an explosion of great violence was felt here about 6:45 o'clock. (A.)

Glen Falls, N. Y., January 27.—Villages throughout this section were shaken this morning, for the third time in less than two weeks, by what is believed to have been an earthquake. The vibrations were reported from Lake George, Hudson Falls, Fort Edward, Greenwich, and other places. (A.)

F. TONDORF, S. J., *Director.*

A.=Associated Press. S. C.=special cable.

TABLE 3.—*Late reports (instrumental).*

MASSACHUSETTS. *Harvard University, Cambridge.*

1920.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
Sept. 4	.....	O.....	14 08 30	.....	.....	.....	10,600	95.4° of arc; steady mass jerked W.
		P_E....	14 22 10	.....	.....	.....	.....	
		S.....	14 30 29	7	.....	.....	.....	Micros only on N; Me very low; weak.
		e.....	14 34 56	6	.....	.....	.....	
		eL_E...	14 55 10	46	.....	.....	.....	LR1 not found.
		L.....	15 06 20	20	.....	.....	.....	
		L_E....	15 33 26	18	.....	.....	.....	
		L_N....	16 34 07	8, 10	.....	.....	.....	Probably of different origin and
			to 35 07	.....	.....	.....	.....	less distance.
		F?....	16 45 *ca.*	.....	.....	.....	.....	
7	.....	O.....	5 56 44	.....	.....	.....	6,215	53.9° arc; not clearly shown on EW; offset eastward.
		e_E....	6 06 22	.....	.....	.....	.....	
		i.....	6 06 49	.....	.....	.....	.....	
		S_E....	6 13 26	8	.....	.....	.....	
		eL_E...	6 23 07	28	.....	.....	.....	L not distinct; earthquake in N. Italy.
		L.....	6 29 00	20	.....	.....	.....	
		F?....	7 09 *ca.*	.....	.....	.....	.....	
8	.....	O.....	1 46 17	.....	.....	.....	10,540	94.86° of arc; from eL–S; eL difficult.
		e_E....	2 04 52	.....	.....	.....	.....	
		i_E....	2 06 32	.....	.....	.....	.....	
		S_E....	2 11 07	6	.....	.....	.....	
		eL_E...	2 12 29	6	.....	.....	.....	
		eL.....	2 15 16	10	.....	.....	.....	
		L.....	2 16 42	12	.....	.....	.....	
		L.....	2 22 42	24	.....	.....	.....	
		eL_E...	2 32 32	30	.....	.....	.....	
		L.....	2 51 04	23	.....	.....	.....	
		F.....	3 37 *ca.*	.....	.....	.....	.....	
9	.....	(O)....	(18 55 36)	.....	.....	.....	13,750	O taken from Riverview 3150; Harvard O from eLe-(O Riverview), at V_L 228 kms./min.; A increases; micros only on N.
		e_E....	19 15 47	.....	.....	.....	.....	
		e.....	19 27 27	.....	.....	.....	.....	
		e.....	19 34 18	24	.....	.....	.....	
		eL_E...	19 55 49	30	.....	.....	.....	
		L.....	19 58 01	26	.....	.....	.....	
		L.....	20 01 24	20	.....	.....	.....	
		L.....	20 15 00	16	.....	.....	.....	
		LR1..	20 59 18	20	.....	.....	.....	
		F.....	21 16 *ca.*	.....	.....	.....	.....	
17	.....	O.....	23 50 59	.....	.....	.....	2,800	25.2° arc; North Atlantic region?
18	.....	S_E....	0 01 05	10	.....	.....	.....	
		eL_E...	0 03 16	24	.....	.....	.....	
		L.....	0 03 51	20	.....	.....	.....	
		C.....	0 10 00	16	.....	.....	.....	
		C.....	0 15 39	16	.....	.....	.....	
		F.....	0 24 *ca.*	.....	.....	.....	.....	
20	.....	O.....	(14 38 36)	.....	.....	.....	(13,780)	N undamped; E damped by magnet; 1½1 only.
		$PR1_E$..	14 59 14	.....	.....	.....	.....	
		$PR1_N$..	14 59 46	.....	.....	.....	.....	
		i_E....	15 00 56	14	.....	.....	.....	
		$PR3_E$..	15 05 08	11	.....	.....	.....	
		iS_E...	15 07 56	.....	.....	.....	.....	
		i_E....	15 11 39	12	.....	.....	.....	
		i_N....	15 11 43	6	.....	.....	.....	
		$SR1_E$..	15 15 57	20	.....	.....	.....	
		$SR1_N$..	15 16 28	18	.....	.....	.....	
		e_E....	15 19 02	26	.....	.....	.....	
		$SR2_E$..	15 21 42	18	.....	.....	.....	
		eL_N...	15 33 42	40	.....	.....	.....	
		eL_E...	15 35 47	40	.....	.....	.....	
		M_E....	15 43 00	24	.....	.....	.....	
		eM_N...	15 44 44	26	.....	.....	.....	
		M_N....	15 46 05	20	.....	28.3	.....	
		C_N....	15 46 59	16	.....	.....	.....	
		eM_N...	15 48 42	20	.....	.....	.....	
		M_N....	15 49 26	19	.....	.....	.....	51 mm. trace.
		M_E....	15 49 00	19	.....	.....	.....	5.9 mm. trace. The M_N form a long spindle-shaped group having their middle M at this epoch.
		M_N....	15 50 08	.....	.....	*43,500	.....	
		M_N....	15 50 44	.....	.....	*62,000	.....	
		C_N....	15 54 00	.....	.....	.....	.....	
		eM_N...	15 58 52	18	.....	*3,000	.....	
		eM_N...	16 04 42	18	.....	*2,100	.....	3 waves.
		eM_N...	16 11 04	18	.....	.....	.....	4 waves.
		$?LR1_E$	16 44 *ca.*	24	.....	.....	.....	
		F.....	17 37 —	.....	.....	.....	.....	
21	.....	O.....	(2 38 54)	.....	.....	.....	2,700	NSW; O from Riverview.
		e?.....	3 52 17	12	.....	.....	.....	Faintly and poor y registered, on EW only.
		L.....	3 55 36	20	.....	.....	.....	
			to 56 25	.....	.....	.....	.....	
21	.....	O.....	(17 42 46)	.....	.....	.....	.....	Not recorded on NS.
		e.....	.. .. ..	.....	.....	.....	.....	
		eLP_E..	18 27 17	24	.....	.....	.....	
		L.....	18 34 08	20	.....	.....	.....	
		L.....	18 37 50	15	.....	.....	.....	
		F.....	18 50 *ca.*	.....	.....	.....	.....	
24	.....	O.....	21 54 03	.....	.....	.....	3,950	35½° of arc.
		Pn_E...	22 02 30	3	.....	.....	.....	
		i_E....	22 03 35	3	.....	.....	.....	
		$_N$.....	22 03 45	4	.....	.....	.....	
		S_E....	22 08 04	7	.....	.....	.....	
		Sn....	22 08 10	7	.....	.....	.....	
		eL_E...	22 10 45	26	.....	.....	.....	M 0.5 mm. trace.
		eL_N...	22 10 50	8, 10	.....	.....	.....	
		F.....	23 03 *ca*	.....	.....	.....	.....	

* Trace amplitude.

MASSACHUSETTS. *Harvard Universiby Cambridge.*—Continued.

1920.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
Sept. 27	.....	O.....	3 *postea.*	.....	.....	.....	.....	Phases indistinct.
		e_N?....	5 37 15	.....	.....	.....	.....	
		e_N.....	5 38 41	6	.....	.....	.....	
		e_E.....	5 44 04	4	.....	.....	.....	
		e_N.....	5 44 39	2	.....	.....	.....	
		e_N.....	5 44 36	.....	.....	.....	.....	
		L_E....	5 45 02	8	.....	.....	.....	
		e_N.....	5 45 07	6	.....	.....	.....	
		L_E....	5 46 01	11	.....	.....	.....	M_E 5 46 01; 3½ mm.
		L_N....	5 47 29	19	.....	.....	.....	
		F_E....	6 30 *ca.*	.....	.....	.....	.....	

HAWAII. *U. S. C. & G. S. Magnetic Observatory, Honolulu.*

1920.			*H. m. s.*	*Sec.*	*μ*	*μ*	*Km.*	
Dec. 1	.....	e.....	14 29 06	.....	.....	.....	.....	
		L.....	14 32 54	.....	.....	.....	.....	
		M.....	14 40 00	.....	*100	.....	.....	
		C.....	14 44 ..	.....	.....	.....	.....	
		F.....	14 59 ..	.....	.....	.....	.....	
3	.....	e.....	18 31 30	.....	.....	.....	.....	Slight record.
		L.....	18 42 24	.....	.....	.....	.....	
		M.....	18 45 54	.....	*100	.....	.....	
		C.....	18 47 ..	.....	.....	.....	.....	
		F.....	18 52 ..	.....	.....	.....	.....	
5	.....	eP.....	22 07 42	.....	.....	.....	.....	iP faint; L difficult to place.
		iS.....	22 14 12	.....	.....	.....	.....	
		(?)eL..	22 20 00	.....	.....	.....	.....	
		M.....	22 33 30	.....	*100	.....	.....	
		C.....	22 37 ..	.....	.....	.....	.....	
		F.....	23 54 ..	.....	.....	.....	.....	
7	.....	e.....	15 31 30	.....	.....	.....	.....	
		L.....	15 39 36	.....	.....	.....	.....	
		M.....	15 46 54	.....	*200	.....	.....	
		C.....	16 00 ..	.....	.....	.....	.....	
		F.....	16 22 ..	.....	.....	.....	.....	
10	.....	e.....	4 51 00	.....	.....	.....	.....	L certainly present at L_2 and possibly at L_1.
		i.....	4 58 42	.....	.....	.....	.....	
		L_1....	5 07 54	.....	.....	.....	.....	
		L_2....	5 12 00	.....	.....	.....	.....	
		M.....	5 19 00	.....	*2,700	.....	.....	
		C.....	5 21 36	.....	.....	.....	.....	
		F.....	7 55 ..	.....	.....	.....	.....	
11	.....	eP.....	21 34 12	.....	.....	.....	.....	eP faint; S and L well marked.
		iS.....	21 42 42	.....	.....	.....	.....	
		L.....	21 52 54	.....	.....	.....	.....	
		M.....	21 58 24	.....	*300	.....	.....	
		C.....	22 05 ..	.....	.....	.....	.....	
		F.....	22 18 ..	.....	.....	.....	.....	
13	.....	P.....	3 51 54	.....	.....	.....	.....	P and S well marked.
		iS.....	3 59 36	.....	.....	.....	.....	
		L.....	4 08 30	.....	.....	.....	.....	
		M.....	4 17 42	.....	*1,100	.....	.....	
		C.....	4 21 ..	.....	.....	.....	.....	
		F.....	5 08 ..	.....	.....	.....	.....	
16	.....	P.....	12 18 24	.....	.....	.....	.....	P somewhat uncertain on account of other tremors in trace, which also obscure the point F; L indefinite.
		iS.....	12 28 42	.....	.....	.....	.....	
		iSR_1..	12 34 24	.....	.....	.....	.....	
		M.....	13 00 00	.....	*26,000	.....	.....	
		C.....	15 03 ..	.....	.....	.....	.....	
		F.....	15 49 ..	.....	.....	.....	.....	
16	.....	e.....	21 25 42	.....	.....	.....	.....	
		L.....	21 34 00	.....	.....	.....	.....	
		M.....	21 42 36	.....	*800	.....	.....	
		C.....	21 47 ..	.....	.....	.....	.....	
		F.....	22 24 ..	.....	.....	.....	.....	
17	.....	e.....	19 25 48	.....	.....	.....	.....	
		e.....	19 43 30	.....	.....	.....	.....	
		L.....	19 53 00	.....	.....	.....	.....	
		M.....	19 55 48	.....	*300	.....	.....	
		C.....	20 05 ..	.....	.....	.....	.....	
		F.....	21 11 ..	.....	.....	.....	.....	
18	.....	eP.....	10 16 48	.....	.....	.....	.....	eP faint; emergence of S gradual.
		eS.....	10 26 18	.....	.....	.....	.....	
		L.....	10 40 24	22	.....	.....	.....	
		M.....	10 48 54	.....	*400	.....	.....	
		C.....	10 52 ..	.....	.....	.....	.....	
		F.....	11 22 ..	.....	.....	.....	.....	
19	.....	eP.....	20 22 00	.....	.....	.....	.....	eP faint.
		iS.....	20 28 30	.....	.....	.....	.....	
		eL.....	20 36 00	24	.....	.....	.....	
		M.....	20 56 18	.....	*200	.....	.....	
		C.....	21 05 ..	.....	.....	.....	.....	
		F.....	21 50 ..	.....	.....	.....	.....	
25	.....	e.....	11 45 30	.....	.....	.....	.....	First phase faint second and third have considerable amplitude but emerge slowly.
		e.....	12 01 06	.....	.....	.....	.....	
		e.....	12 08 00	.....	.....	.....	.....	
		L.....	12 20 00	.....	.....	.....	.....	
		M.....	12 32 36	.....	*600	.....	.....	
		C.....	12 34 ..	.....	.....	.....	.....	
		F.....	12 53 ..	.....	.....	.....	.....	

* Trace amplitude.

TABLE 3.—*Late reports (instrumental).*

PORTO RICO. *U. S. C. & G. S. Magnetic Observatory, Vieques.*

1920.			H. m. s.	Sec.	μ	μ	Km.		1920			H. m. s.	Sec.	μ	μ	Km.	
Dec. 10	.....	P_E	4 43 22	9	.....	.....	.....	eP_N and eS_E quite faint; no distinct M on NS.	Dec. 16	.....	e_E	12 36 50	.....	.....	.....	.....	In both components the first phase is faint and difficult to place.
		eP_N	4 43 27	.....	.....	.....	.....				e_N	12 38 12	.....	.....	.....	.....	
		eS_E	4 49 50	.....	.....	.....	.....				e_E	12 43 11	.....	.....	.....	.....	
		L_E	4 57 39	.....	.....	.....	.....				i_N	12 44 10	.....	.....	.....	.....	
		L_N	5 00 45	.....	.....	.....	.....				e_N	12 49 10	.....	.....	.....	.....	
		M_E	4 58 10	30	15	.....	.....				L_E	12 59 40	.....	.....	.....	.....	
		M_N	.....	.....	.....	15	.....				L_N	13 03 30	35	.....	.....	.....	
		C_E	5 00 ..	.....	.....	.....	.....				M_E	13 16 24	22	335	.....	.....	
		F_N	5 17 ..	.....	.....	.....	.....				M_N	13 17 45	22	.....	1,165	.....	
		F_E	5 31 ..	.....	.....	.....	.....				C_N	13 28 ..	20	.....	.....	.....	
											C_E	13 33 ..	20	.....	.....	.....	
11	.....	e_E	21 36 39	.....	.....	.....	.....	Slight record.			F_N	14 22 ..	16	.....	.....	.....	
		L_E	21 38 35	.....	.....	.....	.....				F_E	14 32 ..	16	.....	.....	.....	
		F_E	21 46 ..	.....	.....	.....	.....										